PROCEDURE FOR EPA NESHAPS LEVEL II, NOTICE OF CONSTRUCTION, AND MINOR STACK INSPECTIONS

1.0 PURPOSE AND SCOPE

The purpose of this procedure is to document the tools and methods used by the Washington State Department of Health Radiation Protection Division Air Emissions and Defense Waste Section (WDOH) in conducting an Environmental Protection Agency (EPA) National Emission Standards for Hazardous Air Pollutants (NESHAP) Level II Inspection of major emission units, Notice of Construction inspections, or the inspection of minor emission units.

Essential elements for an inspection are:

- Walk through and evaluate the emission unit and the control devices.
- Review and evaluate data from the calibration records, control devices, and maintenance records.
- Review and evaluate sample records – physical and chemical processes of the system.
- Review and evaluate continuous emissions monitoring and data.
- Review, evaluate, and determine if sufficient measures were taken in deregistering operating systems.
- Review and evaluate source term records.

2.0 PRE-INSPECTION REVIEW

Review the following documents, industry standards, and emission unit specific information prior to performance of an inspection:

2.1 Documents:

Governing Notices of Construction, compliance letters, meeting minutes, previous audits and inspections, audit responses, and other information specific to the operation and maintenance of the emission unit.

2.2 Air Operating Permit (AOP) License:

Conduct a review of the AOP license to identify the conditions outlined in the chemical and physical process description, required sampling, and emission controls, or other conditions or limitations of operation.

2.3 Industry Standards:

- American Society for Mechanical Engineers (ASME) / American National Standards, Inc. (ANSI) AG-1, Code of Nuclear Air and Gas Treatment (where there are conflicts between this standard and others listed in the various references, this standard shall take precedence).
- ASME/ANSI N509, Testing of Nuclear Air-Cleaning Units and Components.
- ASME/ANSI N510, Testing of Nuclear Air Treatment Systems.
- ANSI/ASME NQA-1, Quality Assurance Program Requirements for Nuclear Facilities; 40 CFR 60, Appendix A, Methods 1, 1A, 2, 2A, 2C, 2D, 4, 5, and 17;
- ANSI N13.1, Guide to Sampling Airborne Radioactive Materials in Nuclear Facilities.
- ANSI N13.1-1999, Sampling and Monitoring Releases of Airborne Radioactive Substances From the Stack and Ducts of Nuclear Facilities.

3.0 INSPECTION

3.1 Walk through and evaluate the emission unit and control devices.

The stack design and preventive maintenance program should be in place and address the requirements of the industry standards listed in Section 2.3 of this procedure. Visually inspect the following items.

3.2 Housing and Ducts:

- Adequate access to housing (ANSI N510).
- Adequate number and in acceptable condition of operating latches on access doors to achieve uniform seating (ANSI N510).
- Sample and challenge injection ports located and labeled upstream and downstream of each HEPA filter (ANSI 510).
- Sample and injection ports equipped with leak-tight caps or plugged (ANSI N510).
- Condition of flexible connection between housing and fan located external to housing adequate to prevent leakage of untreated air. (ANSI N510).
- Adequate seal between door and casing (ANSI N510).
- Housekeeping in and around housing adequate for maintenance, testing and operation (ANSI N510).
- Adequate guards provided on fans for personnel safety (ANSI-N510).
- Fan-shafts seals installed where required (ANSI N510).

- Airtight seals of conduit, electrical connections, plumbing, drains, or other conditions that could result in bypassing of the housing or any component therein (ANSI -N510).
- No sealant or component frames. Caulking of any type on/in housing or component frames. Caulking on/in ducts may be permissible depending on project specifications (ANSI N510).
- Loop seals have adequate water level. (ANSI N510).
- All fire protection components in satisfactory condition.

3.3 Local Instrumentation:

- No damage to instrumentation (ANSI N510).

3.4 Lighting, Housing:

- Adequate lighting provided for visual inspection of housing and components (ANSI N510).

3.5 Mounting frames for filters and moisture separators:

- No damage to the frames that may interfere with proper seating of components (ANSI N510).
- Sample canisters installed and unused connections capped or plugged leak-tight (ANSI N510).
- No penetrations of the mounting frame except for test canisters (ANSI N510).
- No sealant or caulking of any types (ANSI N510).

3.6 Filter Clamping Devices:

- Sufficient number of devices of adequate size to assure specified gasket compression (ANSI N510).
- All clamping hardware complete and in good condition (ANSI N510).

3.7 Moisture Separators:

- No damage to media, frame, or gaskets (ANSI N510).
- No dirt or debris loading, which creates a higher than the specified pressure drops across the bank of components, at the design airflow rate (ANSI N510).
- Proper installation of moisture separators (ANSI N510).

3.8 Air Heating Coils - Inside Housing:

- No damage to coils, which may affect operability of the heaters (ANSI N510).
- No dirt or debris on or between coils (ANSI N510).

3.9 Pre-filters:

- No damage to media, frame, or gaskets that may affect operability of pre-filters (ANSI N510).
- No dirt or debris loading that creates higher than the specified pressure drop across the filter bank at the design flow rate (ANSI N510).
- Proper installation of pre-filters (ANSI N510).

3.10 HEPA Filters:

- No damage to filter media (ANSI N510).
- Acceptable condition and seating of gaskets with at least 50% compression (ANSI N510).
- No dirt or debris loading that creates higher than the specified pressure drop across the filter bank at the design flow rate (ANSI N510).
- No sealant or caulking of any type (ANSI N510).
- Filters are properly installed with pleats vertical (ANSI N510).

3.11 Absorbers:

- No damage to absorbers or adsorbent beds (ANSI N510).
- Acceptable condition and seating of gaskets with at least 50% compression (ANSI N510).
- No through bolts on Type II absorbers or other structure that could cause bypass in an absorber bank (ANSI N510).
- No sealant or caulking of any type (ANSI N510).

3.12 Dampers - Housing and Associated Bypass Duct:

- No damage to or distortion of frame or blades (ANSI N510).
- No missing seats or blade edging (ANSI N510).
- No damage to shaft, pivot pins, operator linkages, operators, or packing (ANSI N510).
- Linkage connected and free from obstruction (ANSI N510).
- No damage to gaskets (ANSI N510).

3.13 Manifolds:

- No unacceptable damage to test manifolds (ANSI N510).
- Adequate clearances between permanent manifolds and filters (ANSI N510).

3.14 Emission Unit Sampling System:

- Sample holder in good condition?
- Are instruments working properly?
- Is exposure to adverse weather conditions affecting sampling system?
- Is the sampling point a minimum of 5 diameters downstream from abrupt changes in flow directions or prominent transitions? (ANSI N13.1).
- Are rubber, copper and plastics avoided in the sample delivery lines? (ANSI N13.1)
- Are sample line length and use of bends kept to a minimum? If bends are required, the bend radius of the elbow should be as long as practical. (ANSI N13.1).
- Does the sampling probe configuration meet the recommendation of ANSI N13.1 Appendix A? The radius of the bend curvature should be equal to or greater than five times the diameter of the sample tubing. The nozzle lengths should be approximately five times the diameter of the sample tube. (ANSI N13.1).
- Are samples drawn from several points within the cross-sectional area of the stack? (ANSI N13.1)
- Are radionuclides being directly monitored or extracted, collected and measures at a location selected in accordance with 40 CFR 60 Appendix A Method 1? (40 CFR 61)

3.15 Air Operating Permit (AOP) License or current NOC:

- Verify chemical processes are conducted as described.
- Verify physical processes are conducted as described.
- Verify required sampling is being conducted as described in AOP License.
- Verify required emission controls are in place as described in AOP License.
- Verify compliance to current NOC approval letter Conditions/Limitations if the NOC approval is subsequent to the AOP effective date (not yet incorporated as a revision or modification to the AOP). Otherwise the AOP is the governing document.

3.16 Emission Unit Specific Information:

(This information should be requested during the walk down of the emission unit).

- Emission unit drawings.
- Monitoring system drawings.

- Monitoring system calibration records.
- Emission data and data verification procedures
- High Efficiency Particulate Air (HEPA) filter leak test and procedures.
- Personnel training records.
- Potential-to-emit calculation from the Facility Emission Monitoring Plan (FEMP).
- Stack flow measurement and procedure.
- Record sample exchange and chain of custody procedures.
- Line loss study (if available).
- NESHAP Point-by-point evaluation (if available).

4.0 DOCUMENT REVIEW

After the inspection fieldwork is finished, complete the following items:

4.1 Review and evaluate data from calibration records, control devices, and maintenance records:

Ensure control devices and indication devices are being operated and maintained in accordance with the standards referenced in section 2.3 of this procedure.

4.2 Review and evaluate sample records:

Determine the completeness and accuracy of the sample process, chain of custody, sample analysis, data validation, and staff training. Check the following items.

- Are all radionuclides that could contribute greater than 10% of the potential effective dose equivalent being measured? (40 CFR 61)
- Are chain-of-custody procedures in place and used for stack effluent samples? (40 CFR 61 Appendix B Method 114)
- How is effluent data validation performed? (40 CFR 61 Appendix B Method 114)
- Is sample collection procedure followed?
- Are action levels established and documented?

4.3 Review and evaluate continuous emission monitoring data:

Review continuous emission monitoring data for the past year looking for anomalies, increasing trends, etc. Determine if analytical results meet the necessary detection limits. Determine if continuous emission monitoring was conducted according to the standards identified in Section 2.3. Check the following items:

- Are radionuclide emission rates being measured using 40 CFR 60 Appendix A Method 2 and 2A? (40 CFR 61)

- Is the effluent stream being directly monitored continuously with an in-line air detector or are representative samples being withdrawn continuously? (40 CFR 61).

- For stacks with variable flow rates are continuous flow rate measurements being made? (40 CFR 61).

- Are representative samples being withdrawn in accordance with ANSI N13.1-1969 or ANSI N13.1-1999?

4.4 Review, evaluate, and determine if sufficient measures were taken in deregistering operating systems.

Determine if there is still a potential for radioactive air emissions and a need for active or passive ventilation system with emission control and/or monitoring devices. Determine if emission unit has been physically isolated from service, and if proper documentation was sent to the WDOH identifying deregistration of the emission unit.

4.5 Review and evaluate source term records:

Review and evaluate current source term for emission unit. Determine activities planned for the coming year and the possible effect on the current source term. Review calculation used to determine the potential-to-emit.

5.0 POST INSPECTION

After the field inspection and document review are finished, complete the following items:

- Identify concerns raised during inspection.

- Notify the owner/operator of the facility of the concerns raised and work to develop a resolution. Resolutions with estimated completion dates should be included in the Inspection Report Letter.

6.0 CLOSE-OUT MEETING

After completion of sections 2.0 through 5.0 of this procedure hold a closeout meeting with the owner/operator of the facility. During the meeting identify the issues that were raised and their resolutions. Identify if any Notices of Correction will be issued.

7.0 DOCUMENTATION

- Enter all required information into the database, following the Air Emissions and Defense Waste Database Data Entry Manual.
- Issue an Inspection Report Letter. The section secretary gives the letter identification number and the Section Head or their designee must sign the letter. The letter is sent to the inspected facility with a copy to the EPA and the Department of Ecology.
- Place Inspection Report Letter and documentation from the inspection in the inspection file.

8.0 QUALITY ASSURANCE

- Two inspectors perform the inspection to confirm noncompliance conditions.
- Pictures can be taken of any unusual conditions.
- Copy of Inspection Report Letter kept in Olympia office files.

9.0 REFERENCES

ASME/ANSI AG-1, Code of Nuclear Air and Gas Treatment

ASME/ANSI N509, Testing of Nuclear Air-Cleaning Units and Components

ASME/ANSI N510, Testing of Nuclear Air Treatment Systems

ANSI/ASME NQA-1, Quality Assurance Program Requirements for Nuclear Facilities

40 CFR 60, Appendix A, Methods 1, 1A, 2, 2A, 2C, 2D, 4, 5, and 17

ANSI N13.1-1969, Guide to Sampling Airborne Radioactive Materials in Nuclear Facilities

ANSI N13.1-1999, Sampling and Monitoring Releases of Airborne Radioactive Substances From the Stack and Ducts of Nuclear Facilities

WAC 246-247, Radiation Protection-Air Emissions

Author: _____

Reviewed: _____

Section Head: _____

Review Due Date: _____